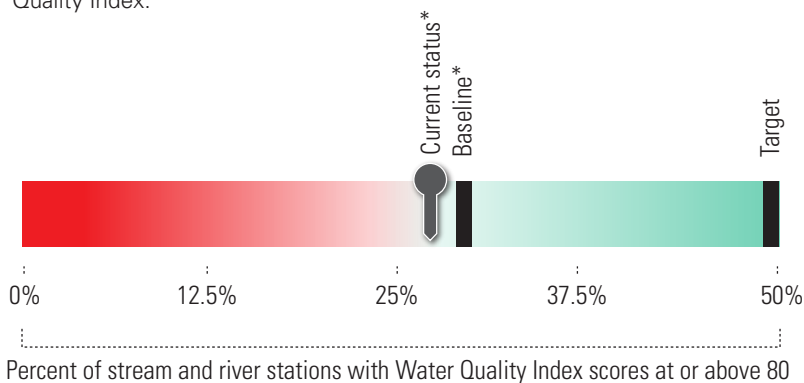


Freshwater Quality

Water Quality Index

Progress Toward the 2020 Target

At least half of all monitored stations should score 80 or above on the Water Quality Index.



*The baseline is the percentage of stations (55 in total) where the average Water Quality Index scores was at or above the target value of 80 from 2003 to 2007. The status is the same percentage, but calculated for 2008-2012.

Is There Progress Toward the 2020 Target?

There has been no progress toward the 2020 target for the Water Quality Index. Only about 27 percent of monitored stations were at or above the target value of 80, on average, from 2008 to 2012, indicating that they support water quality goals for conventional pollutants (toxics are not included). This number is slightly lower compared to the baseline reference established for the 2003-2007 period (29 percent). Furthermore, results from the trend analysis of 14 major rivers at their most downstream sites suggest that the target is not likely to be reached by 2020.

The earliest projection to meet the target for these 14 rivers would be 2025. When adjusted for differences in seasonal flows, the trend is much slower: average flow-adjusted scores of 80 are projected for 2060. Flow-adjusting accounts for the effect of flow on the parameters underlying the index.

However, this kind of estimate is a best guess due to fluctuations in drivers like the rate of population growth, global warming, and effectiveness of management

Water Quality Index

Annual, 2000-2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Average
Duckabush River nr Brinnon	93	95	94	90	74	94	89	85	88	96	86	89	97	90
Skokomish River nr Potlach	95	95	94	85	70	67	92	89	89	94	86	70	88	86
Snohomish River at Snohomish	92	91	89	81	74	75	89	75	81	85	79	77	90	83
Elwha River nr Port Angeles	86	88	83	76	73	74	86	67	66	81	81	76	64	77
Cedar River at Logan St/Renton	87	76	60	78	72	84	81	79	79	81	77	75	85	78
Skagit River at Marblemount	87	86	59	85	64	81	84	75	75	81	56	77	76	76
Skagit River nr Mount Vernon	89	91	71	76	61	73	77	77	75	76	74	73	77	76
Nisqually River at Nisqually	40	60	79	79	69	71	74	75	91	74	83	86	86	74
Deschutes River at East St Bridge	62	72	70	73	61	83	88	88	83	76	74	60	84	75
Stillaguamish River nr Silvana	81	60	44	72	55	67	71	69	75	75	71	59	81	68
Green River at Tukwila	82	73	66	67	75	49	72	68	60	69	63	68	75	68
Samish River nr Burlington	86	75	32	49	34	71	67	74	59	80	63	52	78	63
Nooksack River at Brennan	65	68	58	57	52	54	61	51	60	69	56	55	62	59
Puyallup River at Meridian St	60	58	57	55	51	58	59	58	61	49	62	56	71	58

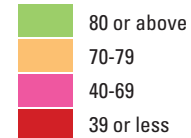


Figure 3.16. Annual Water Quality Index scores for monitoring stations near the mouth of 14 major rivers. Scores are calculated for each water year from October 1st to September 30th. Higher numbers indicate better water quality.

Source: Statewide Water Quality Monitoring Network, Washington State Department of Ecology; Stream and River Water Quality Monitoring, King

activities, as well as possible long-term cycles not visible in the current 15-year dataset. For example, management tends to address the easier and more egregious problems first. As those problems get fixed, remaining problems become more difficult to correct with less effect on the water body for a given level of effort. Consequently, the rate of improvement in the index could be less, perhaps much less, than predicted by simply extending current trends.

Indicator Lead:

Markus Van Prause, Washington State Department of Ecology

photo opposite page credit: brewbooks@flickr

For more in-depth information,

please see:

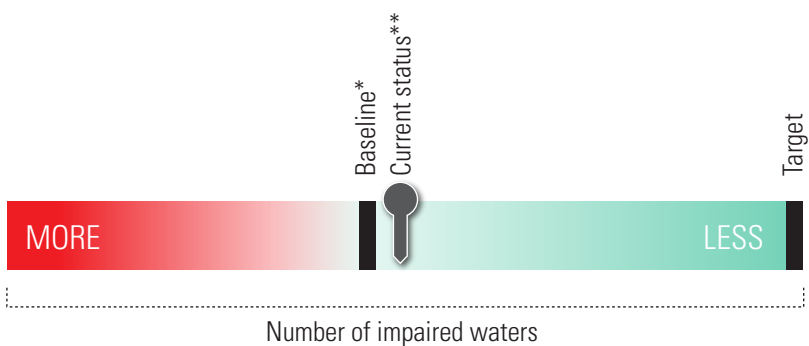
www.psp.wa.gov/vitalsigns/fresh_water_quality.php

Freshwater Quality

Number of impaired waters[†]

Progress Toward the 2020 Target

Reduce the number of “impaired” waters.



*Baseline: 1573, in year 2008

**Status: 1496, by year 2010

Is There Progress Toward the 2020 Target?

Although the number of impairments for rivers and streams decreased by 77 segments in 2010 — a step in the right direction — it does not mean that these segments now meet water quality standards. Instead, the change in number of impairments was largely due to the number of segments receiving

approval for their water quality improvement project plans or pollution control programs.

Having a plan in place removes a segment from the impairment list, but does not necessarily mean that the area has been restored or that water quality standards are being met. For example, only four segments from the 2010 list were removed from the impaired list because they met water quality standards.

[†] This report is adapted from the 2012 *State of the Sound* because no new data were available.

Number of Stream and River Segments Listed in Each Assessment Category 2008 and 2010

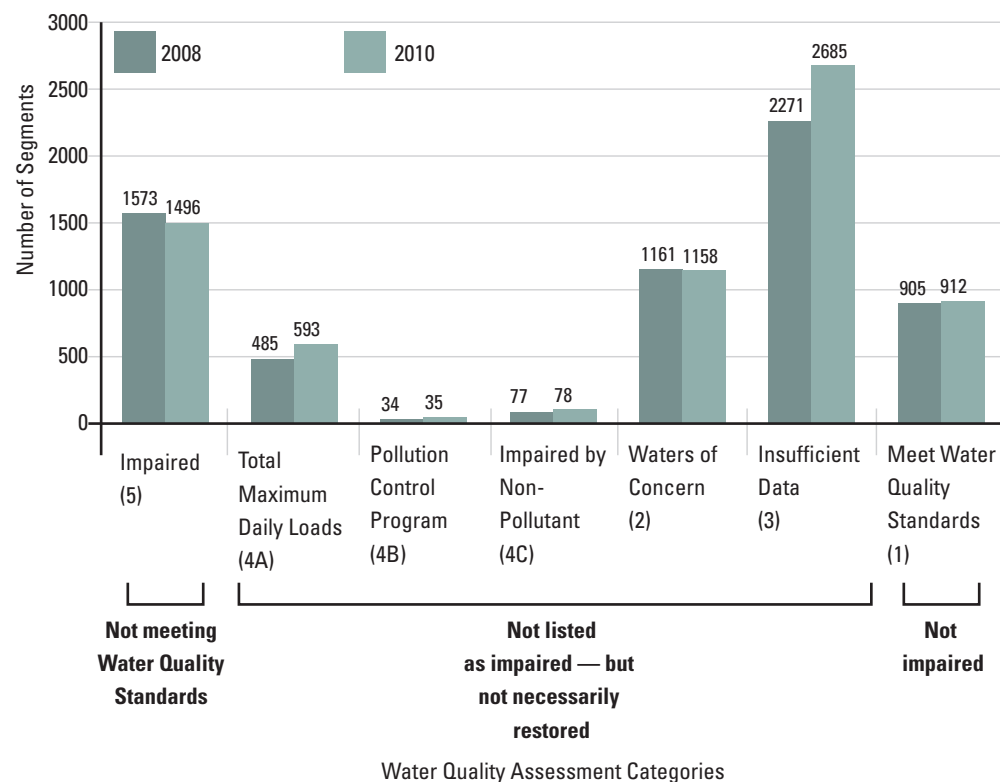


Figure 3.17. Number of stream and river segments listed in each assessment category for 2008 and 2010. Category assignments are from Washington State Department of Ecology's Water Quality Assessment process for Puget Sound watersheds. The 2010 Assessment was focused on marine waters and, therefore, showed minimal changes to freshwater listings.

Source: Water Quality Assessment and 303(d) list

New data for freshwater were not reviewed in 2010; the 2012 water quality assessment will use new data and be published sometime in 2013. The number of freshwater impairments is likely to rise significantly in 2012 due to an increase in data and the number of sites assessed. Comparing the number of impairments for 2008 to 2012 will be difficult because the method used to map and count segments will change.

Indicator Lead:

Ken Koch, Washington State Department of Ecology

For more in-depth information, please see:

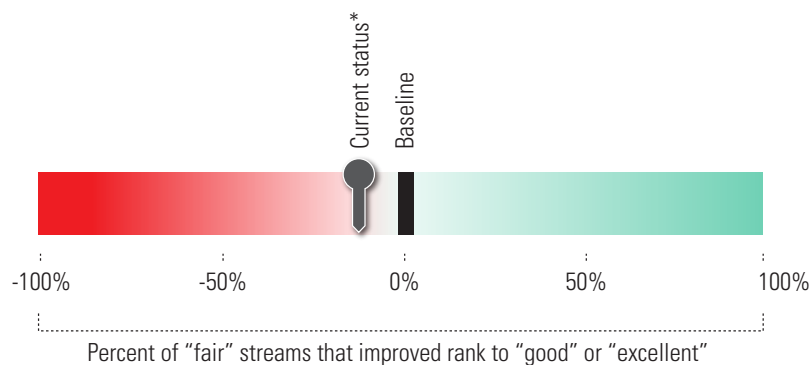
www.psp.wa.gov/vitalsigns/fresh_water_quality.php

Freshwater Quality

Benthic Index of Biotic Integrity[†]

Progress Toward the 2020 Target

Protect small streams that are currently ranked “excellent” by the Benthic Index of Biotic Integrity (B-IBI) for biological condition; and improve and restore streams ranked “fair” so their average scores become “good.”



*The status is the net change in percentage of streams initially ranked as “fair” between 2007 and 2011 that either changed rank for the better or for the worse, based on the Benthic Index of Biotic Integrity scores. Baseline is set at 0 percent.

Is There Progress Toward the 2020 Target?

No progress has been made in improving the biological condition of small streams. Overall, the biological condition of streams initially ranked as “fair” has declined, based on the Benthic Index of Biotic Integrity (B-IBI) scores.

From 2007-2011, a total of 245 stream sites were sampled more than once. Of these, a total of 128 sites had initial B-IBI scores indicating “fair” condition. The biological condition of most of these sites did not change. Consistent with the 2020 target, 11 of the 128 sites improved and changed categories to “good” or “excellent.” However, 26 stream sites declined and changed status from “fair” to “poor” or “very poor.” The net difference in the change in status of 15 streams represents an overall decline (12 percent) in the biological condition of “fair” streams.

[†] This report is adapted from the 2012 *State of the Sound* because no new data were available.

Number of Small Streams Whose Status for Biological Condition Changed Between 2007 and 2011, Based on the Benthic Index of Biotic Integrity Scores for 128 Streams in Puget Sound 2007-2011

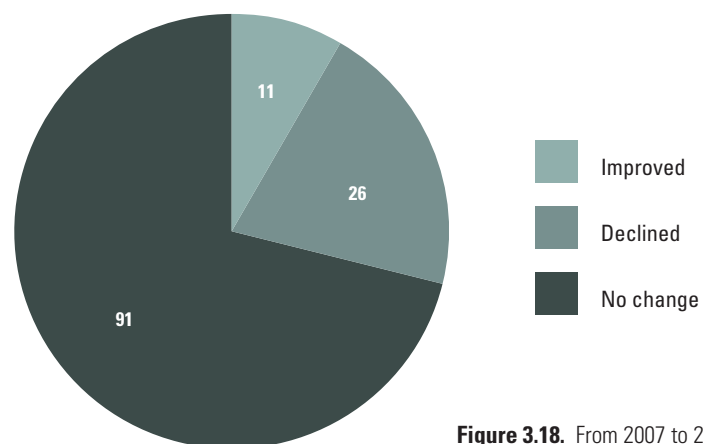


Figure 3.18. From 2007 to 2011, B-IBI was measured more than once at 245 sites. Of these, 128 stream sites were rated as “fair” by B-IBI for the first visit. Of these, 11 improved in condition to “good” or “excellent” condition; 26 declined in condition to “poor” or “very poor;” and 91 were still rated as “fair.”

Sources: Puget Sound Stream Benthos

For the streams with “excellent” biological condition as rated by the B-IBI (there are only 8), some streams are already protected. A detailed analysis has not been done to identify which streams and watersheds should be protected for this target.

Indicator Lead:

Jo Wilhelm, King County

For more in-depth information, please see:

www.psp.wa.gov/vitalsigns/fresh_water_quality.php